USGS

WATER RESOURCES RESEARCH GRANT PROPOSAL

Project ID: 2003ID11B

Title: Validating Meta(loid) Flux Predicitons from Lake Coeur d'Alene Sediments Using Contaminated Ponds as Mesocosms

Project Type: Research

Focus Categories: Sediments, Toxic Substances, Geochemical Processes

Keywords: Heavy Metals, Mining, Sediments, Contaminant Flux

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Federal Funds Requested: $14781.00

Matching Funds: $ 33473.00

Congressional District: 1

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Abstract: Lake Coeur d'Alene (CDA) in Idaho is the second largest natural lake in the Inland Northwest. Lake CDA provides drinking water for at least five communities and serves as a primary recreational area for inhabitants of the Pacific Northwest. Over the last century Lake CDA became, and continues to be, the major collecting bed for contaminated sediments produced during mining and ore processing activities. As a result of these mining activities tailings enriched in Pb, Zn, As, Cd, and other trace elements were deposited in stream banks and bars along the South Fork and main stem of the Coeur d'Alene River. These materials have been regularly resuspended during periods of high stream flow and secondarily transported into Lake CDA. The USGS has estimated that as much as 85% of the lake bottom is contaminated with metal(loids) (Horowitz et al., 1992).

The overriding concern of management agencies responsible for lake water quality is the potential release of the accumulated metal(loids) into the overlying water column. However inadequate information exists at this time to make accurate predictions of metal(loid) release. The Coeur d'Alene Tribe, EPA, Idaho Department of Environmental Quality, and local citizens

groups need such information in order to develop a plan for managing ever increasing use of the lake resource. It is feared that continued development within the region will alter lake nutrient status leading to eutrophication and the promotion of trace element release (Woods, 1989). Unfortunately, projections of metal(loid) release are based on models which may not accurately describe geochemical principles controlling the important processes. There is a need for validating benthic flux model predictions to facilitate management decisions.
